changes as the ship moves into fresh magnetic latitudes. $c c'$ are soft iron rods, intended to represent iron masts.

Quadrantal deviation of the form generally observed is produced by the soft iron rod e', extending from side to side under the deck D D$'$ like a deck beam, the rods $a a$ also conspiring with e' in increasing the quadrantal deviation. That part of the heeling error caused by the magnetism of the hard iron of a ship is produced by a small vertical magnet in the position of the rod l when removed; that from soft iron by the vertical soft iron rod k and the horizontal rod e'.

The compass C having been disturbed by magnetic forces of the usual type in an iron ship, may now be corrected: $m'' n''$ is a magnet with its north or marked end, n'', towards the stern of the model, and near enough to the compass to correct the deviation on the east and west points: $m' n'$ is a second magnet with its north or marked end, n', towards the port side, correcting the deviation on the north and south points. Or the whole semicircular deviation may be corrected by one magnet, $m n$, placed exactly in the direction of R, n being the marked or north end. The quadrantal deviation is corrected by the rods $e e$. The heeling error caused by e' is also nearly corrected by $e e$, and that caused by the sum of the effects of k and the vertical magnet under the compass by another vertical magnet with the opposite pole uppermost.

Thus it will be seen that any component part of the whole deviation usually found at the standard compass of an iron ship may be produced in the model and the corresponding corrector provided.

The portable model adopted by the Board of Trade has a compass mounted on a ship's deck, as in the figure; but the deck, which rests on a central metal support, revolves round a pivot in the centre of a fixed board, an arrangement for inclining the model being provided.

The disturbing magnets and soft iron are arranged thus. For producing the semicircular deviation due to the hard iron of a ship thin magnets are placed as required in any of the grooves cut in the deck radiating from the centre of the compass, so that deviations due to any direction of the ship's head whilst building may be produced. For that part of the semicircular deviation due to soft iron a vertical soft iron bar is fixed in the central longitudinal line of the deck and near the stern. For the quadrantal deviation hollow cylinders of soft iron are placed under the deck similar to the rod e' of the figure. For the heeling error due to hard iron a magnet is placed vertically under the compass.

The correctors are magnets placed on the deck as $m'n'$, $m''n''$ in the figure, and soft iron spheres—on brass brackets which may be turned in azimuth round the compass—instead of the rods $e e$; a Flinder's or vertical soft iron bar before the compass; a vertical magnet under the centre of the compass to correct the heeling error.

This model is exceedingly well adapted for instruction and examination in the causes of the deviations generally found at standard compass positions in the mercantile navy, and the method of correction adopted in that service.

There remains now only the model made for the Bureau of Navigation of the United States Navy Department to be noticed. It consists of a miniature vessel of which the stem, keel, and stern-post are of bronze cast in one piece, with three wooden decks supported by bronze screws. This model, called the *Scoresby*, is pivoted at the stern by a socket in the floor, with a bronze wheel fitted under the bow, so as to be easily turned round in azimuth. The disturbing magnetic forces are produced by magnets and hollow wrought-iron tubes of soft iron, whilst wrought-iron plates can be attached to the sides of the vessel.

The *Scoresby* was designed with the object of proving by experiment the mathematical theory already noticed. Experiments were consequently made as to the effects of hammering the plates of the model with the bow in different directions, a magnetic survey being made after the hammering to determine the polarity in different sections, and its degree of permanency or otherwise. The model was next swung both when upright and inclined, for the deviations of the compass produced by a magnet or soft iron tube representing each parameter singly, combinations being made afterwards as desired. These experimental results proved satisfactorily the correctness of the mathematical theory.

This general description of the *Scoresby* will serve to show that the Americans have taken considerable pains in making valuable experiments in proof of theory, and for instruction to the seaman. Before parting with her, however, a quotation from the American professional paper on the subject of the *Scoresby* seems worthy of a place, as sounding a fresh warning note to those who ruthlessly distribute iron *ad libitum* and in any form round the position of a ship's standard or guiding compass.

"Compensation of large deviations by means of magnets is at the best but a remedy for an ailment; better not sow the seeds of the disease."

The three models just described have been selected as being the most modern specimens of these useful aids to knowledge, but there are others for the instruction of officers in the Royal Navy which have been in use for some years past. It will be gratifying to the many who take interest in maritime affairs to note the increasing anxiety for the spread of a sound knowledge of the principles of the magnetism of iron ships and the deviations of their compasses which the construction of these models manifests.

NOTES

THE total number of candidates for election into the Royal Society this year is sixty-two. Of these the following fifteen have been selected by the Council to be recommended to the Society for election; the voting will take place on June 4:—Shelford Bidwell, M.A., W. Colenso, F.L.S., H. B. Dixon, F.C.S., E. R. Festing, Major-Gen. R.E., Prof. A. R. Forsyth, M.A., Prof. A. H. Green, M.A., Prof. Victor Horsley, F.R.C.S., T. R. Lewis, M.B., R. Meldola, F.R.A.S., P. H. Pye-Smith, M.D., H. C. Russell, B.A., Prof. W. C. Unwin, B.Sc., R. Warington, F.C.S., Capt. W. J. L. Wharton, F.R.A.S., and H. Wilde.

THE following are the probable arrangements for the Friday evening meetings of the Royal Institution after Easter:—May 7, Mr. Frederick Siemens, "Dissociation"; May 14, Prof. John Millar Thomson, F.C.S., "Suspended Crystallisation"; May 21, Sir John Lubbock, Bart., M.P., F.R.S., "The Forms of Seedlings: the Causes to which they are due"; May 28, Prof. Oliver Lodge, D.Sc., "Electrical Deposition of Dust and Smoke"; June 4, Walter H. Gaskell, M.D., F.R.S., "The Sympathetic Nervous System"; June 11, Prof. Dewar, M.A., F.R.S.

THE editor of the *Sidereal Messenger* (U.S.) writes in his April number:—"We are glad to learn from private advices that a small observatory will soon be fitted up with the necessary instruments for continuous solar and local magnetic observation, in which daily solar photographs of the sun will form an important part of the work done by the observers. We are not aware that work of this kind is now anywhere systematically undertaken in the United States."

THE Congress of French Sociétés Savantes will take place as usual at the Sorbonne, and the final ceremony under the chairmanship of M. Goblet, the present Minister of Public Instruction. It is expected that this ceremony will have an unusual interest, M. Goblet having sent a circular to the various learned Societies, announcing his intention of altering the date of the Convocation of French *savants* in Paris.

ALTHOUGH the Association Française and the Société Scientifique de France have passed a vote for their fusion into one compact body, the resolution has not been carried into effect, owing to some legal difficulties resulting from the very peculiar state of French law relating to Societies of public interest, which are considered as so many infants, whose properties are always in the hands of a lord chancellor for protection.

THE Report of the Committee of the Mitchell Library at Glasgow (where the Public Libraries Act was rejected by a moderate majority during the past year), while showing a largely-increased usefulness of that institution, forces attention to the very great cost of working even a reference library only. Out of an expenditure of 2770*l.*, only the odd 770*l.* can be employed in the combined purchase and cost of binding of both books and periodicals. Of this, 450*l.* is all that was spent in the purchase of 4500 publications; which does not suggest costly works for a reference library from which fiction is excluded. Nevertheless, the crowded state of the present rooms has led to an earnest effort to expend nearly fifty times that amount in a new site and "inexpensive" buildings, although the Committee are well aware that "a new and large building would imply a larger annual expenditure of every kind." The present premises have been much more economically, though not sufficiently, supplemented by the addition of two small houses adjoining, in one of which a reading-room for ladies has been fitted up, while the remaining rooms are well utilised by being shelved and filled with the less-used classes of literature. Complete sets of the 268 periodicals taken would be a valuable part of such a library if indexed in the American way, so that all the most recent information would be found there directly or indirectly. A presentation of 288 volumes from the Lords of Her Majesty's Treasury is specially acknowledged, and suggests that a gift from Government Offices of sets of their publications to all free libraries up to a certain time, which would be willing to properly house them, would be no very great cost to the nation, while it would be a reward to the enterprise of those towns which have organised free libraries and an encouragement to others to do so quickly.

THE Fish Commission steamer *Albatross*, *Science* states, arrived at Nassau, New Providence, March 19, after a most successful trip. The ship was chiefly engaged in making soundings. Two naturalists were landed at Watling's Island, San Salvador, where much valuable scientific material was gathered during a stay of two weeks. But little dredging has been done, so that few accessions of marine life have been made. At Rum Cay, Conception Island, Cat Island, and Great Exuma Island, the naturalists of the expedition obtained many valuable specimens of fish, lizards, birds' nests, eggs, cave relics, pottery, and about 500 bird-skins. These islands are very small and thinly populated. Vegetation is scarce, and the islands themselves are formed almost entirely of rock. Cocoa-nut trees and bananas are abundant, but oranges and apples rather scarce. The *Albatross* is now at Key West, and will spend some time dredging in the Gulf of Mexico and vicinity.

GENERAL HAZEN said recently, in his testimony before a U.S. Congressional Committee, that foreign signal stations were a necessity, and the establishment of a station in the West Indies had fully demonstrated this fact. It is quite probable that Congress will authorise the establishment of stations at important foreign points.

AN interesting discussion is just now being carried on between Scandinavian and German anthropologists as to priority in the theory of three great prehistoric periods—the ages of Stone, Bronze, and Iron. Dr. Sophus Müller, for the former, claims that the theory was first enunciated in 1837 by the Danish Thomsen, and that it was ridiculed for forty years by the Germans. To this Prof. Virchow, in the last *Zeitschrift für Ethnologie*, replies that Dr. Müller confounds two different things. The priority of the Stone Age to the others was never disputed in Germany; it certainly was denied that any epoch deserved especially the title of the Bronze Age, and he thinks that this was due to the propensity of the Scandinavians to exaggerate the extent of this epoch. But he contends that two Germans, Lish and Danneil, discovered the three ages simultaneously with Thomsen. In support of this he quotes a memoir by the former, published in 1837, but in large part printed in 1836, before Thomsen's work appeared, and when it was wholly unknown to him, expounding a similar theory. In 1835 Lish had actually arranged prehistoric objects in the Museum in Mecklenburg according to the three ages. Prof. Virchow therefore proposes that in future Danneil (whose share in the discovery does not appear so pronounced), Lish, and Thomsen should be regarded as the earliest propounders of the theory of the three prehistoric ages.

ON March 28, at about 9 p.m., a magnificent meteor was observed in several places between Trondhjem and Molde, on the north-west coast of Norway. An observer at the former town states that his attention was first attracted to the phenomenon by the street in which he was walking becoming suddenly brilliantly illuminated, and on looking up he saw a bright meteor, with a somewhat faint trail, going in a direction S.S.W. to N.N.W. The light from the body itself was an intensely bluish-white, and that of the trail grayish, with a red tint at the end. During its passage the meteor passed behind some light clouds, and was still visible through them, but not the trail. The meteor disappeared from view behind mountains, but a brightness could still be observed in that direction for some time afterwards. Another observer at Christiansund (about 130 kilometres south-east of Trondhjem in a straight line) states that he saw the meteor at that place at 8.45 p.m., going in a direction S.E. to N.W. It was about 40 centimetres in diameter, with a purple-coloured trail of about 1½ metre in length, and its passage was accompanied by a whizzing sound like that of a flight of birds. The meteor illuminated the whole town brightly for some seconds, and burst with a report like that of a big gun. The light was so intense that even people in well-lighted rooms were attracted by the sudden brightness without. At Molde (about 60 kilometres further south) the meteor was also seen, and its bursting was so loud that the Romsdal Mountains returned a thundering echo.

IN the twenty-ninth issue of the Medical Reports of the Chinese Customs, published half-yearly, besides the reports of the medical officers at the various Treaty ports, which are probably of much professional and local interest, there are two special papers. In one of these the character and uses of the so-called "black-lime" of China are noted by Dr. Peek of Tientsin. This substance is generally stated (Dr. Williams even falls into the error) to be a kind of bitumen; it really is amorphous graphite, and it is used when mixed with lime to make a very hard and durable plaster, and it is also employed in dyeing cloth. The second special paper is Dr. Macgowan's on the movement cure in China, which has been already noticed in these columns.

THE Norwegian Meteorological Office is making an appeal to Norwegian sea-captains with reference to the total eclipse on August 29 next, viz. that any one who on that day happens to be in the locality where the eclipse is total shall make observations of the barometer and thermometer every quarter of an hour from 10 a.m. to 4 p.m. (Greenwich time), with a view to ascertain what the effect of the eclipse is on the atmosphere during totality, a point on which our knowledge is very limited. Proper forms for recording the observations, and full details of instructions, are issued gratis by the Office.

AT a recent meeting of the Russian Physical Society, M. B. Sreznewski pointed out some remarkable oscillations of the barometer during the series of atmospheric storms which had passed over Western Europe and Russia from December 12 to 17 last; namely, the sudden appearance on December 12 in Western Europe of a considerable barometric minimum in a region of very equally spread high atmospheric pressure; secondly, the very low range of the barometer at Nicholaistadt in Finland, as low as 717·6 mm.; and thirdly, the remarkable occurrence of a barometric minimum in Western Russia, which brings the author to conclusions similar to those which served M. Brownoff as a basis for his recently published theory of the movement of cyclones.

IN the month of January shocks of earthquake were felt in several parts of Sweden and Norway. The shock which we reported as having been felt in several parts of Central Norway on January 2 was also felt in several parts of Central Sweden. On January 21, at 9.55 p.m., another shock was felt in and around the town of Hernösand, on the Baltic, going in a direction east to west, and shaking houses and fixtures. On the following morning, at about 5 o'clock, another but fainter shock was felt in the same district. In one place two shocks were felt in quick succession.

A REPORT has been received from Tschembar, in Siberia, giving an account of some remarkable phenomena observed at that place on the night of January 3–4 last. At about 1 a.m. a meteor was suddenly seen rushing across the town, being accompanied by sudden gusts of wind, and bursting with a terrific report near the high-road outside the town, and killing a horse before a cart. The peasant who was driving it was so frightened that he was unable to give any details of the occurrence, believing that it was a "fire-dragon" which had slain his horse. Ten minutes later a loud report as of an explosion was heard, on which the commander of the garrison in the town ordered a patrol to proceed at once to the gunpowder magazine, as he believed it had been blown up. This official had hardly issued the order when a second and more terrific report was heard, accompanied by a violent vibration of the earth, which lasted half a minute. During the shock several houses fell in, and the thick ice on an adjacent lake was broken, the blocks being piled one upon the other. A shock and a similar report were observed at the same time at a town twenty versts distant.

ARRANGEMENTS are being made by the Canadian Commissioners at the forthcoming Colonial and Indian Exhibition to hatch and rear large numbers of Salmonidæ and other fish indigenous to the waters of Canada. Consignments of trout and whitefish ova have already arrived at the Exhibition, and are rapidly becoming incubated.

THE *Journal* of the Asiatic Society of Bengal, vol. liv. part ii. No. 3 (December 1885) contains two valuable papers on Indian entomology. Mr. E. T. Atkinson enumerates fifty-one species of Fulgoridæ (including the Indian lanthorn flies), of which several are indicated as new, and there are copious local (and other) notes on already known forms. Prof. A. Forel, who has paid so much attention to ants in general, enumerates twenty-six Indian species contained in the collection of the Calcutta Museum, with one or two new forms. The only other paper in the part is of a thoroughly practical nature, viz. by Mr. A. Pedlar "On the Cause of the Corrosion of Indian Tea Chests." The author sums up by stating that tea if properly cured has no power to corrode lead, but the corrosion is usually due primarily to acetic acid derived from the unseasoned wood of which the chests are too often made.

DR. MEYER has recently issued an "Album of Philippine Types" (Dresden, 1885), containing thirty-two photographic plates, with altogether about 250 figures of natives of Luzon and Mindanao, the two largest islands in the Archipelago. Some of these were originally taken by Dr. Meyer himself in the year 1872, when he spent some time in the Philippines; for the others he is indebted to Herr C. Heinszen, of Hamburg, Dr. W. Joest, of Cologne, and Dr. A. Schadenberg, of Glogau. Two plates with nine figures are devoted to the little-known Bagobos tribe of South Mindanao; all the rest to the motley populations of Luzon. Here are figured a large number of Negritos (Aetas) and half-caste Malayo-Negritos; Tinguianes, and Igorrotes from the northern and western districts; Ibilaos; Ilongotes from the province of Nueva Vizcaya, and Tagalas of every variety (pure, and half-caste Spanish, Chinese, and Negrito Tagalas) from Manilla and other districts. The accompanying letterpress gives a brief description of the several figures, the reader being referred for fuller information to Prof. F. Blumentritt's valuable treatise on the ethnography of the Philippines, which appeared in *Petermann's Mittheilungen*, Ergänzungsheft 67, 1882.

THE library of the Conservatoire des Arts et Métiers is to be lighted by electricity. It is the first Parisian library which will enjoy this advantage. The inauguration will take place next week, on the occasion of the meeting of the several scientific Congresses, which generally assemble in Paris during the week following Easter.

AT the January meeting of the Russian Chemical Society, Prof. Mendeléeff communicated some results of his investigation into the thermic effects of dilution of sulphuric acid with water. The maximum evolution of heat and the maximum contraction of 100 parts of the solution both correspond to the solution containing from 65 to 75 per cent. of H_2SO_4, which is very near to the hydrate $H_6SO_6 = S(HO)_6$. Together with some other observations this leads the author to the conclusion that there exist at least five more or less constant hydrates of sulphuric acid, as H_2SO_4, H_4SO_5, H_6SO_6, and two more containing a large amount of water, as $H_2SO_4 + 100H_2O$.

CONSIGNMENTS of grayling ova have been received by the National Fish Culture Association and the Buckland Museum. Considering the present period of the year, the fry are unusually late in becoming incubated, but this may be accounted for by the fact that, the past winter being very severe, it has greatly retarded the development of fish life. The ova are fully-eyed, however, and in some instances a few newly-born fish are issuing therefrom.

THE additions to the Zoological Society's Gardens during the past week include a Pudu Deer (*Pudua humilis*), five Chilian Sea-Eagles (*Geranoaetus melanoleucus*), two Siskins (*Chrysomitris barbata*), a Diuca Finch (*Diuca grisea*), two Auriculated Doves (*Zenaida auriculata*) from Chili, a King Vulture (*Gypagus papa*) from Tropical America, five Capoeira Partridges (*Odontophorus dentatus*) from Brazil, two Barn Owls (*Strix flammea*) from America, an Antarctic Skua (*Stercorarius antarcticus*) from the Antarctic Sea, presented by Mr. Harry Berkeley James, F.Z.S.; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*), a Barnard's Broadtail (*Platycercus barnardi*) from Australia, presented by Lord Braybrooke, F.Z.S.; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, presented by Mr. W. Woods; six Field Frogs (*Rana arvalis*) from Breslau, presented by Mr. G. A. Boulenger, F.Z.S.; four Californian Quails

(*Coturnix californica*) from California, a Scarlet Ibis (*Eudocimus ruber*) from Para, deposited; a Roan Kangaroo (*Macropus erubecens*) from South Australia, an Eroded Cinixys (*Cinixys erosa*) from West Africa, a Merrem's Snake (*Liophis merremi*) from South America, purchased; an Axis Deer (*Cervus axis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

RELATION OF ASTEROID ORBITS TO THAT OF JUPITER.—Prof. H. A. Newton, in the *American Journal of Science*, April 1886, points out that the orbits of the asteroids should have a relation to that of Jupiter. For supposing the orbits of the asteroids to be distributed in any manner whatever, provided only that they make small angles with the plane of Jupiter's orbit, the action of Jupiter would give to each orbit a motion of its node which would differ for the different orbits, and eventually the orbits would come to be distributed somewhat symmetrically about the orbit of Jupiter. And as a matter of fact, the centre of gravity of the poles of the 251 known asteroid orbits, computed as for points of equal weight, lies only 30′ from the pole of Jupiter's orbit; so that the plane of Jupiter's orbit lies nearer to the mean plane of all the asteroid orbits than any single asteroid orbit does, the nearest orbits being those of Medusa and Euterpe, inclined to it 46′ and 49′ respectively.

In the same periodical Dr. H. Geelmuyden, of Christiania, remarks, relative to Prof. Searle's deduction that the plane of the zodiacal light has some relation to the asteroid orbits (NATURE, February 11, p. 350), that "the most northerly point of Jupiter's orbit has the heliocentric longitude 188°, or with 60° east elongation 178°; and for matter in the same plane, but nearer the sun, the approximation to coincidence with 160° is still greater."

THE PROPOSED CHANGE IN THE ASTRONOMICAL DAY.—M. Raoul Gautier has recently published in the *Archives des Sciences Physiques et Naturelles* of Geneva an account of the proceedings of the International Meridian Conference held at Washington in October 1884. Remarking that the resolutions passed at Washington are similar in many respects to those of the Roman Conference of the preceding year, M. Gautier goes on to point out how they differ in the important particular of the manner of reckoning universal time, and that on this account a large number of astronomers have expressed their reluctance to conform to these recommendations, more especially to the sixth resolution (which proposed that the astronomical and nautical days should be arranged everywhere to begin at mean midnight of Greenwich), the adoption of which would involve considerable changes in the astronomical and nautical ephemerides, which are used by all observers and navigators. Astronomers, M. Gautier states, as well as sailors, begin the day at noon; the former to avoid changing the date in the middle of the night during a series of observations, the latter because they find it convenient to commence the day at the moment when they observe the sun on the meridian. Why then, he asks with some force, oblige them to modify their habits, now of long standing, considering that the fourth resolution passed at the Washington Conference expressly stipulates that the universal day ought not to interfere with the use of local or other standard time where the latter appears desirable?

THE PLEIADES AS SEEN AND AS PHOTOGRAPHED.—MM. Henry have recently compared their beautiful photographic map of the Pleiades with the map so carefully laid down by M. Wolf in 1873-75, and published in vol. xiv. of the *Mémoires de l'Observatoire de Paris*, and find that the photograph possesses the following advantages over the map made by direct eye-observation. The photograph shows faint objects which are lost to the eye through their proximity to bright stars; thus the Maia nebula, and another near Electra, have been made evident, as well as details recognised hitherto only by Mr. Common in the Merope nebula. A number of faint companions have also been detected close to several of the brightest stars of the group, and in several cases where M. Wolf had detected a faint companion to a bright star, the photograph has shown that the magnitude of the former was under-estimated. Many more stars are seen on the photograph than are given in M. Wolf's map, the former showing 1421 stars, the latter 625; the aperture of the instrument employed being about the same in both cases. A yet more striking instance of the superior sensitiveness of the plate is seen in the fact that M. Rayet, in his revision of M. Wolf's map in the pure air of Bordeaux, and with a much more powerful instrument, added only 151 stars in a region where the photograph gave 338. All the stars observed by M. Wolf are seen in the photograph but ten, and these cannot be found in the sky.

The Brothers Henry, whilst laying stress on these facts as showing how indispensable a weapon photography has now become to the astronomer, disclaim the idea of criticising M. Wolf's great work, and completely assent to his opinion, expressed in the *Comptes rendus*, vol. cii., No. 9, that the eye of the observer must continue to work at the same time as the sensitive plate; the latter can never supersede the former.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 APRIL 25—MAY 1

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on April 25

Sun rises, 4h. 45m.; souths, 11h. 57m. 51·4s.; sets, 19h. 10m.; decl. on meridian, 13° 15′ N.: Sidereal Time at Sunset, 9h. 25m.

Moon (at Last Quarter April 26) rises, 0h. 57m.; souths, 5h. 28m.; sets, 10h. 2m.; decl. on meridian, 17° 22′ S.

Planet	Rises	Souths	Sets	Decl. on meridian
	h. m.	h. m.	h. m.	° ′
Mercury ...	... 4 16	... 10 37	... 16 58	... 3 29 N.
Venus ...	... 3 25	... 9 6	... 14 47	... 4 21 S.
Mars ...	... 13 19	... 20 21	... 3 23*	... 11 16 N.
Jupiter...	... 15 20	... 21 37	... 3 54*	... 2 32 N.
Saturn...	... 7 51	... 16 3	... 0 15*	... 22 51 N.

* Indicates that the setting is that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich)

April	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	° °
28 ...	d′ Aquarii ...	... 6	... 3 38	... 4 42	... 42 288
29 ...	78 Aquarii	... 6	... 2 49	... 3 8	... 139 175

April	h.	
28 ...	6 ...	Mercury at greatest distance from the Sun.
29 ...	17 ...	Venus at greatest elongation from the Sun, 46° west.
30 ...	5 ...	Venus in conjunction with and 0° 19′ north of the Moon.

Positions of the Comet Fabry

1886	R.A.	Decl.	Log Δ	Brightness.
	h. m. s.	° ′		
April 25	... 1 45 25	... 31 18 N.	... 9·420	... 315
27	... 2 29 43	... 24 51	... 9·355	... 400
29	... 3 20 22	... 15 22	... 9·309	... 465

Positions of the Comet Barnard

1886	R.A.	Decl.	Log Δ	Brightness.
	h. m. s.	° ′		
April 25	... 1 39 50	... 39 53 N.	... 0·047	... 67
27	... 1 38 41	... 40 19	... 0·023	... 80
29	... 1 38 8	... 40 31	... 9·997	... 94

The comet positions are for Berlin midnight.

Variable-Stars

Star	R.A.	Decl.		h. m.	
	h. m.	° ′			
R Leporis ...	... 4 54·4	... 14 59 S.	... Apr. 26,	0 0	*m*
δ Libræ ...	... 14 54·9	... 8 4 S.	... ,, 25,	3 26	*m*
U Coronæ ...	... 15 13·6	... 32 4 N.	... ,, 30,	1 53	*m*
U Ophiuchi ...	... 17 10·8	... 1 20 N.	... ,, 25,	1 31	*m*
			and at intervals of	20 8	
X Sagittarii ...	... 17 40·4	... 27 47 S.	.. Apr. 28,	2 20	*m*
			May 1,	0 0	*M*
W Sagittarii	... 17 57·8	... 29 35 S.	... Apr. 25,	21 40	*m*
			,, 29,	2 25	*M*
U Sagittarii ..	... 18 25·2	... 19 12 S.	... ,, 26,	2 30	*m*
			,, 29,	2 20	*M*
β Lyræ ...	... 18 45·9	... 33 14 N.	... ,, 29,	21 35	*M*
η Aquilæ ...	... 19 46·7	... 0 7 N.	... ,, 29,	21 40	*M*
R Vulpeculæ	... 20 59·3	... 23 22 N.	... ,, 25,		*m*
δ Cephei ...	... 22 24·9	... 57 50 N.	... May 1,	0 0	*M*

M signifies maximum; *m* minimum.